RRIFR
Russian River Instream Flow and Restoration

Russian River Estuary Adaptive Management

An estuary is where a river meets the ocean. The mix of freshwater from the river and saltwater from the sea creates a dynamic environment that supports a broad array of fish, wildlife, and invertebrate and plant species. Salmon and steelhead use estuaries to adapt to saline conditions prior to entering the ocean and to adapt to freshwater before migrating upstream to their spawning grounds.

The Problem During the summer, tidal action forms a sandbar at the mouth of the Russian River near the town of Jenner. The sandbar often becomes high enough to prevent the river from entering the sea. The result is a lagoon that occasionally threatens to flood low-lying properties from Jenner to Duncans Mills.

For many years private citizens would breach the sandbar, enabling the river to flow into the ocean and eliminating the threat of flooding. In the early 1950s, the Sonoma County Public Works Department took over the job, using heavy equipment to breach the sandbar. In the mid-1990s, the task was turned over to the Sonoma County Water Agency (SCWA) during a county reorganization. (For current breaching practices, see the reverse side.)

Scientists with the National Marine Fisheries Service (NMFS) believe that the large volume of saltwater that enters the estuary when the sandbar is opened creates a less-than-optimal environment for young steelhead to grow before entering the ocean.

The Solution NMFS biologists believe that a summertime freshwater lagoon would create a healthier nursery for young steelhead. They point to other rivers in California, where the formation of similar "perched" lagoons has improved conditions for steelhead during the summer months.

The Implementation The biological opinion outlines a two-pronged strategy for creating a summertime freshwater lagoon.

Part one of the strategy is to reduce the flow of water in the Russian River during the summer. Less water in the river reduces the likelihood of the lagoon's flooding nearby properties. Please see the "Proposed Changes to Russian River Flows" document for details on reducing summertime flows.

Part two of the strategy requires SCWA to adopt "adaptive management" practices in the estuary that involve the following:

- Annually creating an outlet channel, cut diagonally to the northwest, to allow river water to flow out while preventing ocean water from entering the lagoon
- Considering artificially closing the sandbar if it hasn't closed on its own by mid-June
- If the new method of creating a perched lagoon isn't successful, studying the effects on the estuary of the jetty at Goat Rock State Beach and evaluating alternatives that include removing or notching the jetty
- If the new method of creating a perched lagoon isn't successful in reducing flood risks, evaluating the possibility of elevating structures in the area

The plan also requires extensive biological, physical, and water-quality monitoring to help determine whether a closed summertime lagoon is better for salmon.

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SONOMA COUNTY WATER AGENCY

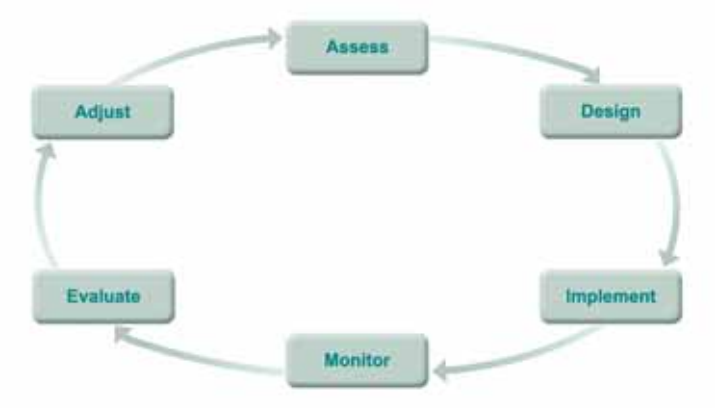
Current Sandbar Breaching Program

The Sonoma County Water Agency mechanically breaches the sandbar to alleviate potential flooding of low-lying shoreline properties near Jenner. Breaching is performed when the water surface level in the estuary is between 4½ and 7 feet as determined by the gauge at the Jenner Visitors' Center, in accordance with the *Russian River Estuary Study 1992–1993*. Breaching when water surface levels in the estuary are at or below 7 feet prevents flooding of Willow Creek marsh as well as potential water-quality effects related to draining floodwaters from the marsh.

To breach the sandbar, a bulldozer or similar equipment is offloaded at the parking lot at Goat Rock State Beach and driven onto the beach via an existing access point. A "pilot channel" is cut at a depth that allows river flows to begin carrying sand into the ocean. The sand is mechanically moved onto the beach adjacent to the pilot channel. After the pilot channel is dug, the last upstream portion of the sandbar is removed, allowing river water to flow into the sea. The size of the pilot channel varies, depending on the height of the sandbar, the level of the tide, and the surface level of water in the estuary. A typical channel would be approximately 100 feet long, 25 feet wide, and 6 feet deep. The amount of sand moved ranges from less than 100 cubic yards to approximately 1,000 cubic yards.

Within 24 hours prior to breaching, SCWA contacts state parks lifeguards and posts signs and barriers to minimize potential hazards to beach visitors.

Adaptive Management



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For more information visit ***www.sonomacountywater.org***.

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